New Ideas In Riveting

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At a time when speed, elimination of waste, and accuracy are at a premium on the assembly lines all over the country, there comes a new development that may revolutionize riveting in industry, especially in warplane factories.

In many parts of an airplane it becomes quite difficult to rivet the metal sheeting on the framework, because of the inaccessability of the supports. Using the ordinary rivet it is necessary to have one man "bucking" the riveter on the other side of the metal part in order to keep the sheet metal from buckling. In many parts, such as the inside of a wing it is, naturally, impossible to get a man into the proper position. Ordinarily, self-tapping screws are used, or a long handled "dolly" is inserted and the riveter has to guess when it is in place, and then hope for the best.

A new tubular rivet that can be riveted from the outside by one man alone has been developed. Tubular rivets are not new, but it has not been until now that they have been perfected for economical mass production work.

The hollow rivet is stamped out of strip Monel, duralumin, or carbon steel. The rivet blank is then slipped on an ordinary commercial nail of plain carbon steel. The shank of this nail has been cut or necked down just below the head to weaken it.

The entire unit is placed in the rivet hole with the head of the nail going in first, causing the flanged part of the rivet to be on the outside of the part riveted.

The fastening process is done with a standard pneumatic squeezer provided with a special chuck and claw. The claw grasps the extending shank of the nail and the chuck holds the lip of the rivet against the metal part being fastened.

As soon as the trigger is pulled on the squeezer, the claw pulls the nail towards the outside. The head of the nail is then forced against the inside tube of the rivet and expands it up to a point where the weakened nail breaks off at the head. This is the place where expansion will give maximum holding power. The head of the nail falls on the inside, the shank is pulled out; another rivet, just as strong as the solid types, is in place.

Twenty rivets a minute can be pulled by two men,

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one placing rivets and the other working the squeezer.

Planes have already been built using these rivets and flown in combat. There planes are sometimes damaged quite badly when they return from a battle. In the past, it was very difficult to repair them using ordinary rivets. Now, however, a device similar to the pneumatic squeezer, and not requiring air pressure can be used in the field to put in the new rivets. Thus, instead of dismantling the plane, it is necessary only to cut away the damaged section and rivet in a new patch.

A special, easily applied compound is used to fill in the holes in the rivets, making a smoother job and cutting down air resistance.